

REMARKS

After the foregoing amendment, claims 1-4, and 6-16 are pending in the application.

Applicants respectfully request additional consideration and review of the claims in view of the foregoing amendment and the following remarks.

Changes to the Specification

Applicants propose to amend the specification to correct a reference to a component on page 7, line 3. As stated on page 6, line 25, the component with reference number '90' is properly referenced as feedback control block 90. Also, Applicants propose to amend the specification to clarify wording in selected paragraphs.

Objections to the Claims

Claim 3 was objected to for having a dependency on itself. The objection has been addressed by amending claim 3 to depend from claim 1.

Rejections Under 35 U.S.C. § 112

Claim 12 has been rejected based on insufficient antecedent basis for the step "wherein said step of maintaining a Best Effort credit counter ...". Applicants have responded to this rejection by amending claim 12 to depend from claim 10.

In view of the foregoing, Applicants respectfully request that the rejection under 35 U.S.C. §112 be withdrawn.

Rejections Under 35 U.S.C. § 102(e)

The Examiner has rejected claims 1-16 under 35 U.S.C. § 102(e) as being anticipated by Elwalid et al. (U.S. 5,978,356). Applicants have canceled claim 5. Applicants respectfully traverse this rejection.

A purpose of Applicants' claimed invention is to provide a method of asserting selective feedback from a downstream stage to an upstream stage in a multi-stage switching system carrying traffic flows characterized by specific

Quality of Service requirements. An important aspect of Applicants' claimed invention is to regulate traffic streams by generating selective backpressure on specific traffic streams. This important aspect of Applicants' claimed invention is pointed out, for example, in independent claim 1 that calls for "*aggregating one or more component traffic streams ... carrying the aggregate stream in a single, FIFO queue ... generating selective backpressure on selected ones of the component traffic streams ...*". Similar language appears in Applicants' specification on page 3, lines 1-22.

Turning now to the cited reference, Elwalid is generally concerned with providing a traffic shaping system that increases the connection-carrying capacity of a network node by shaping the data cells to increase the admissible number of connections. Elwalid's method intends to exploit differences in delay tolerances between more time sensitive traffic classes and less time sensitive traffic classes. However, there are significant differences in Applicants' claimed invention and Elwalid.

First, each communications device in Elwalid transmits data to a separate regulator, as shown in FIG. 1. Elwalid segregates data from each communications device into a more time sensitive traffic flow and a less time sensitive traffic flow. (See FIG. 2) Even assuming that the respective traffic flows are aggregated into a component traffic stream at the FIFO statistical multiplexer, contrary to Applicants' claim 1, Elwalid does not teach aggregating one or more component traffic streams into an aggregate stream.

Second, Applicants' claimed invention aggregates component traffic flows into a component traffic stream and aggregates one or more component traffic streams into an aggregate stream, with no distinctions between the component traffic streams. This aspect is pointed out in Applicants' claim 1 limitation that calls for "aggregating one or more component traffic streams into an aggregate stream". Contrary to Applicants' claim 1, Elwalid segregates traffic streams into a more time sensitive traffic flow and a less time sensitive traffic flow, with separate regulators for each traffic flow type. (See FIG. 2) More time sensitive traffic is fed directly into a FIFO statistical multiplexer from its regulator. Less time sensitive

traffic is fed from its regulator directly into a shaper that uses the extra permissible delay to shape the traffic, as pointed out in column 4, lines 40-54. Afterwards, the less time sensitive traffic is fed into the FIFO statistical multiplexer. Therefore Elwalid does not teach Applicants' claim 1 limitation calling for "aggregating one or more component traffic streams into an aggregate stream".

Third, in addition to the above-mentioned limitations, Applicants regulate traffic by generating selective backpressure on selected ones of the component traffic streams. This aspect is pointed out in Applicants' claim 1 limitation that calls for "generating selective backpressure on selected ones of the component traffic streams such that selected ones of the component streams are desirably regulated". Contrary to Applicants' claim 1, Elwalid regulates traffic by shaping and smoothing the less delay sensitive traffic, as pointed out, for example, in column 4, lines 27-33.

Fourth, in the Office Action, the Examiner acknowledges that Elwalid does not disclose the use of a backpressure scheme on the traffic streams, as called for in Applicants' claim 1. These distinctions are sufficient to distinguish Applicants' claim 1 from Elwalid.

Furthermore, Applicants respectfully object to the Examiner taking official notice as per claim 1. Applicants assert that their method of generating backpressure on selected ones of the component traffic streams to regulate selected ones of the component traffic streams is not common knowledge nor is it practiced in the art. Applicants respectfully submit that a reference document should be cited that shows prior art as the basis for the rejection of Applicants' claim 1.

Elwalid does not teach the limitations recited in Applicants' independent claim 1 for the above-mentioned reasons. Since claims 2-16 ultimately depend from claim 1, these dependent claims are therefore also believed to be allowable for the same reasons set forth above for independent claim 1. Therefore, Elwalid does not embody Applicants' claims 2-4 and 6-16.

In view of the foregoing, Applicants respectfully request that the rejection under 35 U.S.C. §102(e) be withdrawn.

Rejections Under 35 U.S.C. § 103(a)

The Examiner has rejected claims 6-16 under 35 U.S.C. §103(a) as being unpatentable over Elwalid (U.S. 5,978,356) in view of various other references. Applicants respectfully submit that even if it were obvious to combine Elwalid and the other references in the manner suggested in the Office Action, the resulting combinations would not embody Applicants' inventive teachings nor anticipate Applicants' claims.

Claim Rejections under Elwalid and Chen

Claims 6-8 were rejected under 35 U.S.C. §103(a) as being unpatentable over Elwalid (U.S. 5,978,356) in view of Chen et al. (U.S. 6,188,674 B1).

In the Office Action, the Examiner contends that it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the traffic shaping system from Elwalid with the use of a credit counter from Chen. Applicants assert, however, that even if the cited references could be combined, the resulting combination would not embody Applicants' inventive teachings nor anticipate Applicants' claims.

First, as noted by the Examiner in the Office Action, Elwalid does not disclose the use of a credit counter for each component traffic stream that initializes, decrements, increments and resets the counter as appropriate. This distinction alone is sufficient to distinguish Applicants' claimed invention from Elwalid.

Second, the credit counter in Applicants' claimed invention is used in asserting selective backpressure for a specific traffic stream. Applicants' credit counter is incremented when data arrives at the queue occupancy counter from the upstream stage and the scheduler has granted services. This aspect is pointed out by Applicants' claim 7 limitation calling for "incrementing the counter when the queue is given service granted to the specific type of traffic stream

without regard to the type of data item which departs the single FIFO queue". In addition, Applicants' credit counter performs other functions such as decrementing, truncating, and resetting, as pointed out in Applicants' claim 7. In contrast, Chen measures packets by counting and selectively marking packets in ingress modules. In egress modules, marked packets that belong to the same traffic flow are detected and counted, as pointed out in column 3, lines 28-36. In effect, the counter is incremented at ingress and again at egress modules, upon detection of a marked packet. And, Chen discloses no other functions performed by the counter as in Applicants' claim 7. This distinction alone is sufficient to distinguish Applicants' claim 7 from Chen.

Combining Elwalid with Chen would not embody Applicants' claimed invention. As noted above, Applicants' claim 7 calls for "... incrementing the counter when the queue is given service granted to the specific type of traffic stream without regard to the type of data item which departs the single FIFO queue ...". Neither Elwalid nor Chen discloses this limitation. Consequently, neither Elwalid nor Chen teach, either when taken individually or in combination, "... incrementing the counter when the queue is given service granted to the specific type of traffic stream without regard to the type of data item which departs the single FIFO queue ...". This distinction alone is sufficient to distinguish Applicants' claims 6-8 from the combination of Elwalid and Chen.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claims 6-8.

Claim Rejections under Elwalid, Chen and Brown

The Examiner has rejected claims 9-16 under 35 U.S.C. §103(a) as being unpatentable over Elwalid (U.S. 5,978,356) in view of Chen et al. (U.S. 6,188,674 B1) and further in view of Brown et al. (U.S. 6,075,772).

The Elwalid and Chen combination does not teach or suggest Applicants' independent claim 1 for the above-mentioned reasons. Brown does not cure the deficiencies noted above for Elwalid and Chen. Since claims 9-16 ultimately depend from independent claim 1 which has previously been shown to be

allowable, it is therefore also believed to be allowable for the same reasons set forth above for the respective independent claim 1. Therefore, the combination of Elwalid, Chen, and Brown still does not embody Applicants claims 9-16.

Accordingly, Applicants respectfully request reconsideration and withdrawal of the 35 U.S.C. § 103(a) rejection of claims 9-16.

Claim Amendments

Claims 1, 2, 4, 6, 8-10, 12 and 15 have been amended to more clearly and particularly point out that which Applicants regard as the invention and to improve their form generally.

Conclusion

In view of the foregoing amendments and remarks, Applicants submit that claims 1-4 and 6-16 are in condition for allowance, and reconsideration is therefore respectfully requested. If there are any outstanding issues that the Examiner feels may be resolved by way of a telephone conference, the Examiner is invited to contact the undersigned to resolve the issues.

Respectfully submitted,

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Sharon L. Lobosco Date 5/26/04
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